Wodniczka
photo Grzegorz Kłosowski

Conserving Aquatic Warblers in Poland and Germany

POLISH SOCIETY FOR THE PROTECTION OF BIRDS

INTRODUCTION

Lars Lachmann
LIFE Project coordinator

In your hands, you are holding the 2nd issue of the Aquatic Warbler LIFE Project Newsletter. Two years have passed since we produced its predecessor. This new issue will show you that we have been very busy during this time, as you might have found out earlier, by following news items on our project website www.wodniczka.pl or www.seggenrohrsaenger.eu.
After five years of intensive project work, we are fast approaching the end of the project in May 2011. This is a moment, when it is worth looking back at what we have been able to achieve: Regular ecological monitoring and some targeted pieces of important research have helped us to better understand the exact requirements of our target species, and how best to manage its habitat. The project has facilitated the introduction of specialised prototype mowing equipment based on alpine caterpillar piste bashers, which for the first time allows the large-scale management of Aquatic Warbler habitat without the danger of destroying the delicate vegetation and peat soil structure. Thousands of hectares of prime Aquatic Warbler habitat have been made available for active conservation measures through the purchase of land, and especially through the fact that our partner, the Biebrza National Park, has decided to lease out key portions of the species' habitat to private farmers and enterprises with the task to manage it for nature conservation. In combination with the targeted agri-environment schemes for the conservation of Aquatic Warblers, which are in effect since 2009, this secures suitable management for years to come. Over 3,200 ha have so far been actively managed within this project, and for over 4,000 ha ongoing management has been secured.
The project is at the very heart of the conservation activities for the Aquatic Warbler: Related initiatives in Belarus, the Ukraine and Lithuania have been able to build on this project's experience and are now introducing similar solutions. We have also co-hosted the Meeting of Signatories of the International Aquatic Warbler Memorandum of Understanding in May 2010, that brought together all experts and national decision makers important for Aquatic Warbler conservation.
Still, large amounts of biomass arisings from habitat management, and insecurity over the continued funding remain problems to be solved. We are therefore very pleased that we have been granted financing for a second project by the EU LIFE+ Programme, which will implement solutions to overcome these two issues.
The next publications coming out of this project are the "Aquatic Warbler Conservation Handbook" and the project's "Laymen's report", due in April and May 2011. Both those publications will be available on our website.
While there will be no more newsletters within this project, we will continue to publish them within the new LIFE+ project.

Full country Aquatic Wabler count in Poland 2009

Michał Maniakowski
Project Officer

The full country count wouldn't be possible without help of many volunteers
photo Lars Lachmann

Aquatic Warbler inventory in Poland 2009			1. Count		2. Count		Summary	
Region	**Area**	**Site**	**min.**	**max.**	**min.**	**max.**	**min.**	**max.**
N Podlasie	Biebrza PN.						**2468**	**2489**
N Podlasie	Otulina BPN.						**67**	**88**
N Podlasie	Bagno Wizna		14	14	58	58	**58**	**58**
N Podlasie	Narew pod Drozdowem		6	6	6	9	**9**	**9**
N Podlasie	Narew PN	Kurowo-Pajewo	15	15	18	18	18	18
N Podlasie	Narew PN	Waniewo	6	6	7	7	7	7
N Podlasie	Narew PN	Jeńki Romanowo	8	8	10	10	10	10
N Podlasie	Narew PN	Bobina	2	2	3	3	3	3
						Narwiański PN	**38**	**38**
N Podlasie	Górna Narew	Ańcuty	0	0	2	2	2	2
N Podlasie	Górna Narew	Suszcza	0	0	1	1	1	1
N Podlasie	Górna Narew	Trześcianka	1	1	3	3	3	3
N Podlasie	Górna Narew	Zawyki	0	0	1	1	1	1
						Górna Narew	**7**	**7**
Lubelszczyzna	Polesie PN	Bagno Bubnów					38	38
Lubelszczyzna	Polesie PN	Bagno Staw					131	131
Lubelszczyzna		Ciesacin					1	1
Lubelszczyzna	Torfowiska Chełmskie	Brzeźno					3	3
Lubelszczyzna	Torfowiska Chełmskie	Bagno Serebryskie					96	96
Lubelszczyzna	Torfowiska Chełmskie	Roskosz Ostrowie					53	53
Lubelszczyzna	Torfowiska Chełmskie	Roskosz Tarnowo					24	24
Lubelszczyzna	Torfowiska Chełmskie	Błota Serebryskie					62	62
Lubelszczyzna	Dolina Bugu	Husynne					48	48
						Lubelszczyzna	**465**	**465**
Wielkopolska	Dolina Neru	Nagórki	2	2	1	1	2	2
Wielkopolska	Dolina Neru	Karszew	0	0	1	1	1	1
						Wielkopolska	**2**	**2**
(Pomorze)	PN Ujście Warty.	Słońsk	4	4	11	11	11	11
Pomorze	Delta Świny	Wyspy WPN	2	2	2	2	2	2
Pomorze	Delta Świny	Wola Kępa	1	1	1	1	1	1
Pomorze	Delta Świny	Karsiborska Kępa	5	5	8	8	8	8
Pomorze	Delta Świny	Zajecze Łęgi	1	1	0	0	1	1
Pomorze	Wolin	Rozwarowo	20	20	31	32	31	32
Pomorze	Dolina Odry	Krajnik	3	3	1	1	3	3
Pomorze	Miedwie	Miedwie	0	0	0	0	0	0
						Pomerania (PL)	**55**	**56**

Results of the full country count. The numbers show numebers of observed singing males.

In order to effectively plan conservation measures, one must have information about the condition of protected species' population. Therefore, in the framework of the Aquatic Warbler LIFE Project a full country count in selected locations was conducted. The inventory covered all the known sites occupied by the species nowadays as well as the historically occupied and potential places, where the presence of Aquatic Wabler is possible. The methodology of the count was similar to that used in 1997 and 2003 – in previous inventories, what makes it the third inventory for whole Poland which has been carried out during last 6 years.

The volunteers visited designated locations twice during the breeding season (between 20th May and 10th June and between 20th June and 10th July). Additionally, in the case of Western Pomerania, where the knowledge about the status of population is especially important, counts were carried out synchronically on designated days. On the biggest breeding site of the species – Biebrza River Valley, due to enormous effort and time needed, possible was only one full count.

The Aquatic Warbler is counted in marches through its habitat, volunteer mark on maps or GPS location of intensively singing males. Aquatic Wabler don't form pairs, the males are most vocally active around the sunset, only for about two hours. In the morning Aquatic Wabler is much less active and more difficult to detect. The size of groups of volunteers depends on the size of the study area – it varies from a few to a dozen people in one group.

Summary of the counts' results for the whole country gives a figure of 3167-3212 singing males. The size of population in particular locations are reviewed in Table 1. The table doesn't show the inspected locations, where the Aquatic Wabler hasn't been found.

In comparison with the results of previous inventories the numbers suggest that the Polish Aquatic Wabler population is relatively stable (ca. 2938 in 1997 and ca. 3440 singing males in 2003). It's known that this species tends to fluctuate in abundance. There is no doubt it's good, that we don't observe any dramatic decrease in numbers of Aquatic Wabler in Poland.

However, on closer scrutiny, we find the loss of small locations, especially in Western Pomerania, worrying. We hope that the conservation efforts carried out during the Aquatic Wabler LIFE Project aimed at both small (Pomerania) and the main breeding sites (Biebrza Valley) will prove successful and stop the trend. Preliminary observations in the Biebrza Valley clearly suggest that Aquatic Wabler quickly increases in numbers and colonizes restored habitats, which means their reaction to large-scale mowing is strong. We hope that after strengthening of the local population, it will be able to supply nearby sites.

In the case of Western Pomerania it's difficult to talk about obvious reasons for the progressive decline of numbers of Aquatic Wabler. In the vast majority the habitats have been restored, but it is probably too early for the species to be able to react with stability and then population growth. In addition, the 2009 season was extremely unfavorable in Pomerania – at the beginning of breeding season Aquatic Wabler met with a huge water deficit, later on rain and wind did not help Aquatic Wabler, which builds its nests on ground.

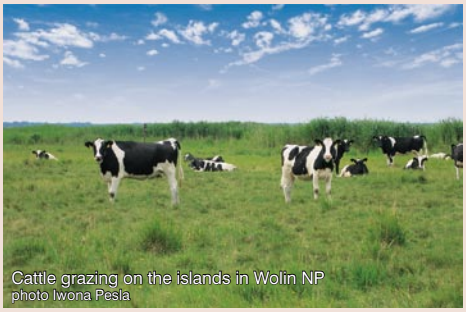
The Aquatic Wabler monitoring action is effectively run by OTOP thanks to participation of many volunteers from across the country. In the inventory in 2009 about one hundred fifty persons were involved, by devoting their time to searching and counting Aquatic Wabler. Its support and sympathy showed also such institutions as national and landscape parks. We would like to thank them all for their hard work in the field.

Aquatic Wabler Agri-environmental schemes Programme and active protection of Aquatic Wabler habitats on islands in Wolin National Park

Marek Dylawerski
LIFE Site Manager for Rozwarowo

Occurrence of Aquatic Warbler in the Wolin National Park for nearly 30 years was associated with a number of islands in the archipelago of Swine Delta. These islands for several centuries have been used by humans as meadows, pastures and reed plantations. Recently the presence of Aquatic Wabler was restricted to 3 islands. The worse situation was observed in 2009, when during counts we found only 2 singing males.

On the other hand since 2009 all the islands under the LIFE Project based on long-term lease agreement are in use of a private tenant – a local farmer. The idea was to combine extensive agriculture – mainly grazing – with the needs of habitat protection. The Directorate of Wolin NP as a fundamental condition of the lease stated the need to protect the nature values of the entire complex, among which the most important is conservation of Aquatic Wabler habitats. The other objectives were to restore the halophytic habitats, especially salt meadows (*Juncetum gerardii*), restoration of degraded habitats of waders, including potential habitats of Dunlin, maintenance of a mosaic structure of meadows habitat with rare plant species (*Aster tripolium, Glaux maritima, Ophioglossum vulgatum*). At the same time a basic condition for the implementation of agricultural activities


Cattle grazing on the islands in Wolin NP
photo Iwona Pesla

was to obtain the partial funds necessary to carry out works through Agri-environmental schemes payments.

Important and necessary to take into account was the fact of implementation of LIFE Project „Conserving Aquatic Wabler in Poland and Germany" on leased area. For bringing the objectives of both extensive agriculture and diverse nature objectives, it was necessary to develop such rules of management on islands that every objective would be filled. In his difficult situation the LIFE Project implementation on islands was very helpful. Thanks to the project it was possible to fund some of the measures and to get useful monitoring data which will help to create the most adequate model of management on islands. This has facilitated the implementation of both optimal use of the system, as well as its start on whole area of the islands.

As the only possible way of management was adopted the conduction of grazing of cattle (meat breed – Limusine), which was varied (intensity, terms), depending on the objectives for each part of island. Particularly important was the exclusion from early grazing of areas occupied in recent years by Aquatic Wabler. The idea was to allow Aquatic Wabler to end its breeding season without the threat of being accidentally trampled by cattle. At the end of breeding season in accordance with applicable schemes (Agri-environmental schemes,


The view on the islands of Wolin NP
photo Michał Radziszewski

option 5.1) the Aquatic Wabler habitats are mowed and the biomass is harvested.

The Aquatic Wabler habitat was fenced from the other part of island, which also has been divided with fences into smaller parts. The total space dedicated to Aquatic Wabler occupies 81,90 ha on 3 islands (22% of total area under the treatments).

In the first year of implementation of measures part of the fence and some of the shelters for cattle on artificially elevated hills were built. Almost 200 cows were grazing on the islands. Management on Aquatic Wabler habitats was implemented in late summer and with some difficulties (flooding of islands) lasted until November.

The first year of grazing and mowing was a difficult test of technical and organizational performance of the work, identification of their actual costs and verification of existing legal principles. The results confirmed our earlier fears about the possibility of required by law procedures implementation, mainly on the timing of implementation of the management measures.

Already this autumn indicated significant change in the quality of biotopes, among others expressed in numerous flocks of migratory birds. So many flocks of Greylag Geese and Bean Geese, Redshanks, Ruffs and Lapwings haven't been seen here for many years. Even more birds were observed in spring 2010, when Ruffs, Shovelers, Lapwings, Black-tailed


The Aquatic Wabler habitat on the islands of Wolin NP
photo Jarosław Krogulec

Godwits and other species feeding on pasture reminded about the years of glory of the islands. Also Aquatic Wabler responded positively to our work by occupying habitats abandoned several years earlier and by increasing their number to four singing males.

An unforgettable impression was the sight of Aquatic Wabler male singing on the fence.

Obtained through LIFE Project implementation and cooperation with the tenant of the islands data and experiences allowed already this year to modify the guidelines for the implementation of measures in 2011 (Protection Plan for Wolin NP). Probably the recommendations contained in the proposed Site Management Plan will become very good basis for the Aquatic Wabler protection in the Protection Plan of NP.

Agri-environmental schemes Bird Package saves the Aquatic Warbler

Marek Jobda
OTOP Agriculture Policy Officer
Piotr Marczakiewicz
LIFE Site Manager for Biebrza National Park
Lars Lachmann
LIFE Project coordinator

Agri-environmental program for 2007-2013 includes so-called „Bird package", which is one of the packages from scheme 4 and 5, concerning protection of breeding birds habitat. The package provides financial support for the use of meadows and pastures in a manner that promotes protection of 10 species of birds, including Aquatic Warbler. It has been implemented thanks to efforts of OTOP. Implementation of the bird package gives a great opportunity for the financing of active protection of Aquatic Warbler in Poland. At the moment it is implemented on most of the species' sites, and one of the most spectacular examples is Biebrza Valley. Thanks to land lease by Biebrza National Park to local farmers, the large, compact and important for birds, including Aquatic Warbler sites, were covered by the bird package. It is expected that such activities will have more beneficial effect on the Aquatic Warbler, than implementation of the package on small, distant plots of individual farmers.

At this stage it is difficult to point out, how will the agri-environmental program look like in Poland after 2013. However, even in the case of restrictions of its implementation in the future, the effect of already existing commitments, regarding the implementation of the bird package will be seen for many years. In some cases, this will stop plant succession, which is one of the major threats to the Aquatic Warbler habitat, even for 20 years. Implementation of agri-environmental program in the Biebrza Valley on a large scale is also a good opportunity to develop other mechanisms to maintain the Aquatic Warbler habitat use in the future (see Project LIFE + Aquatic Warbler and biomass).

The bird package, like other variants of packages 4 and 5 of agri-environmental programs, constitute a very promising tool for nature conservation, but they have also some drawbacks, which should be corrected in the future. Its main disadvantage is a standardized set of requirements, independent on the location of the site. For example in the Aquatic Wabler package annual mowing of 50-70% of the plot is prescribed. Meanwhile, the requirements of the species are distinct in different habitats. In some areas mowing should take place annually, in others every two years or even less frequently. Therefore, there is an urgent need to run the Natura 2000 payments or modify the agri-environmental program, so that the requirements could be adjusted to the emerging plans for Natura 2000 protection tasks. The total payment should be calculated on a basis of a set of requirements depending on the level of difficulty in implementation.


Grazing is one of possible managments in Aquatic Wabler sites
photo Lars Lachmann


Volunteers counting Aquatic Wabler
photo Lars Lachmann

Great project, great people.

Anna Wiśniewska
OTOP-Birdlife Poland
Maja Piasecka
LIFE Site Manager for Karsiborska Kępa

It is impossible to measure the amount of work done by volunteers within the Aquatic Wabler LIFE Project, but for sure it is very impressing. The great number of people was involved in Aquatic Warblers counts, which took place twice in the season in every Aquatic Wabler site during the whole project. Dozens of people were walking through marshes, sometimes even few kilometers into the swamp to count birds on the transects. After counting they were coming back in complete darkness. But even during the day marches are not too friendly. Thousands of mosquitoes and horse-flies were very happy when few teams of volunteers were collecting information on food availability and detailed data on physical quality of habitat later used for the modeling of the optimal Aquatic Wabler habitat.

Within Aquatic Wabler Project also two Work camps in Biebrza Marshes were organized. During the first one, in August 2009, one group of volunteers was building a fascine platform for moving machines, which proved to be very useful in autumn, when marches were mown. The second group was walking through the swamps finding and marking parcels bought within the Aquatic Wabler LIFE Project. In year 2010 plots purposed to be mown in autumn needed to be specially marked and again volunteers were walking all days through swamps with the "marking sticks".

Volunteers assisted also in the OTOP's Karsiborska Kępa Nature Reserve and nearby area – Zajęcze Łęgi. With their help in 2010 two nationwide counts of Aquatic Wabler were carried out. In the first inventory participated 7 people, including students from Germany. In the second monitoring 16 birdwatchers participated. During the counts ornithologist counted also other birds, especially waders.

And so thanks to Aquatic Warbler Poland was visited by many people from all over the world. In Biebrza Marches we hosted volunteers from Canada, Czech, France, Germany, Great Britain, Italy, Japan, Spain, South Korea, Switzerland, Russia, Taiwan and of course Poland. Within the Aquatic Wabler Project there was also a possibility to travel to Belarus. In year 2010 together with Belarusian ornithologists, volunteers from Germany, Netherlands, Lithuania and Poland were counting Aquatic Warblers, often in extremely difficult field conditions. But working for Aquatic Warbler protection is never an easy job. So for all people who decided to help in this project, who were working so hard in the swamps and left liters of their sweat in the field – huge THANK YOU for Your work!!!

The final conference of the EU Aquatic Warbler LIFE project and the second CMS Meeting

Paweł Szałański
LIFE Project Officer

Conference participants
photo Michał Maniakowski

On 11-15 May 2010 at the Biebrza National Park headquarters, two international meetings devoted to the protection of the Aquatic Warbler were organized by the Polish Society for the Protection of Birds (OTOP) and partners. The meetings brought together nature conservation experts and government representatives from 13 countries important for the conservation of this species.

The first meeting was the Final Conference of the LIFE Project "Protection of the Aquatic Warbler in Poland and Germany" It was attended by over 100 participants, including representatives of African countries from Senegal and Mali. During the study sessions current results of the project were presented as well as the current Polish and global situation of the Aquatic Warbler and methods of conservation of this species. On the last day during the field trip participants had the opportunity to admire the Aquatic Warbler habitat Biebrza and evaluate the effects of conservation measures carried out in the project. Everyone had a chance to see and hear the singing Aquatic Warbler.

After the Conference the 2nd CMS Meeting was held – a meeting of representatives of States which have signed the Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, a Memorandum of Understanding for Aquatic Warbler Protection. The meeting host was the Polish government, represented by the General Directorate for Environmental Protection. The first meeting of the CMS was held in 2006 in Germany. In Poland, the signatories of the agreement met for the second time *to review agreement implementation status* and authorize CMS recently revised Aquatic Warbler International Action Plan. There was also agreed the need to extend the agreement to other countries such as Mali, Mauritania, Morocco, Slovakia, Luxembourg, Portugal and Switzerland.


Moericke's trap
photo Francois Griffault


Hard work in the field
photo Francois Griffault

Best Habitat fieldwork finished!

Agata Nowogrodzka
LIFE Site Manager's Assistant
for Biebrza National Park Buffer Zone

The fieldwork in June 2010 finished the four season long (since 2007) research on the Aquatic Warbler habitat selection. Data collected during this monitoring will be used to create a model of optimal habitat of the species. Habitat selection study will help to standardize certain conservation measures in the breeding sites of the species. We hope that results will contribute to more effective protection of globally threatened Aquatic Warbler.

Each year of the research, in the beginning of June a group of volunteers spent three weeks on Biebrza Marshes to lead the monitoring on a randomly selected transects in the sites occupied by Aquatic Warbler. Outside the Biebrza Valley the habitat selection was also studied in Polesie region and Narew Valley, but on much smaller scale. Transects were representing a gradient from suboptimal habitats to the areas with the highest abundance of the species, which will help to define a model of its optima habitat. A total of 45 monitoring transects were examined in the Biebrza Valley, 8 in Polesie and 3 in the Narew Valley. In order to develop optimal habitat model following measures were used: botanical monitoring and monitoring of invertebrates (potential food base for Aquatic Warbler). One kilometer long transects were selected, taking into account the heterogeneity of the site.

It is clear that the optima habitat is the one, where highest density of breeding populations of Aquatic Warbler is recorded. Botanical monitoring was conducted immediately after the inventory of the birds, integrated with collection of invertebrates samples. Priority habitat parameters important for the expected breeding success derived from the knowledge gained during this studies are: the height of vegetation, expressed as dominance, height and cover of various layers of vegetation, including the indicators of succession and "indicator of Aquatic Warbler", the amount of litter, characteristics of indicators of succession – affecting the breeding population, like reed and shrub.

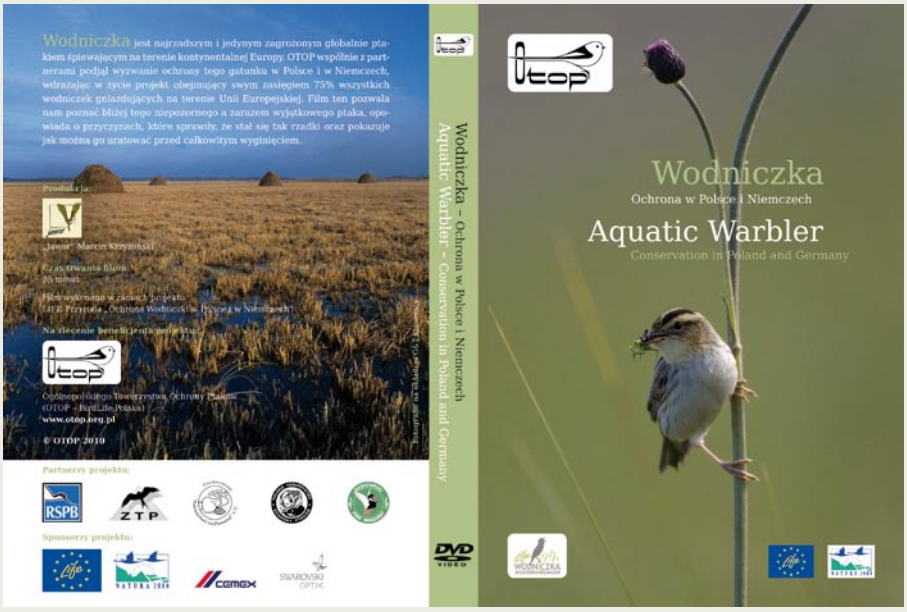
The food availability is one of the most important determinants of success of breeding birds. Taking into account a specific breeding system – promiscuity – food abundance is probably the most important limiting factor for the species. Two different methods were used for the monitoring: Moericke's traps – which allows quantitative evaluation of changes in the number of groups of invertebrates, the size and availability studies of their biomass, and insect nets – which allows to study the taxonomic composition of invertebrates.

Despite the hard work, often changing weather conditions and accompanying insects, all volunteers and Project staff involved in the study had a lot of satisfaction.

On behalf of entire LIFE Project team I would like to thank all the participants in the research: Ania Wiśniewska, Aleksandra Malinowska, Michalina Mikłos, Piotr Marczakiewicz and Mike Trubridge.

Production of the film about Aquatic Warbler Conservation FINISHED

Paweł Szałański
LIFE Project Officer



The cover of the film concerning Aquatic Warbler conservation

Almost exactly two years after the start of the first shooting, the work on production of a film about the Aquatic Warbler conservation has been completed. This is the first and so far the only Polish film devoted entirely to this species, showing why it has become so endangered and how we can protect it.

The film was made by Marcin Krzyżański, author of the popular television series "100 000 storks". The main part of the movie was filmed in May 2008 by a Film Unit of RSPB, with the cameraman Toby Hough and sound manager Robin Hill. But in the film also some other shots were used, whose authors were Krzysztof Skrok, Sebastian Koerner and Jan Walencik. Special thanks should be given to Mr. Michał Lorenc, who agreed to compose and share the music for the film for free.

The first screening took place during the Final Conference of the Aquatic Wabler LIFE Projekt at the headquarters of the Biebrza National Park in Osowiec in May 2010 and officially launched with the participation of invited journalists was held in Warsaw in October 2010 at the occasion of European Bird Day.

The film lass 35 minutes and is available in three languages: Polish, English and German. The owner of the copyright is Polish Society for the Protection of Birds (OTOP), which in accordance with its statute and requirements of the LIFE project will promote and distribute the video to anybody interested free of charge. The material is availability on DVD, but the film can be also viewed on YouTube.

GENERALNA DYREKCJA OCHRONY ŚRODOWISKA

Polish MoE sets up own national secretariat to service the CMS Aquatic Wabler MoU

Magdalena Zadrąg
LIFE Project Officer

In 2004 Poland signed the CMS Aquatic Warbler Memorandum of Understanding, which obligates the country to preserve the Aquatic Wabler within its territory. The countries agreed that they are going to stop the decrease in number of population of the species, mostly by studying its biology, identifying major threats and saving its habitat. The countries set up also an International Species Action Plan for Aquatic Warbler, which recommends specific measures for the species conservation in each country.

In October 2010 the General Directorate for Environmental Protection (GDOŚ) set up a new Secretariat for the Aquatic Warbler MoU implementation.

The secretariat has one worker, who in cooperation with other departments of GDOŚ is going to work for the conservation of the species. Polish government admits that Poland is specially responsible for Aquatic Warbler, because almost 25% of its world's population breeds in our country. That's why Poland needs to make a strong effort to try to improve its habitats.

Poland is working on preparing the National Species Action Plan for Aquatic Wabler to be better prepared to preserve the species. This plan is going to analyze existing data about Aquatic Wabler sites and create a model predicting possible Aquatic Wabler sites. Moreover the plan will also try to propose management measures to preserve the species, mostly by improvement of its habitats.

The secretariat will report to the CMS Secretariat about implementation of the International Species Action Plan in Poland. The role of the secretariat is also to promote the Aquatic Wabler, in particular educate administrative workers, to show them how they can improve their work helping the Aquatic Wabler. The secretariat is going also to publish some materials about Aquatic Wabler and possibilities of conservation of the species.

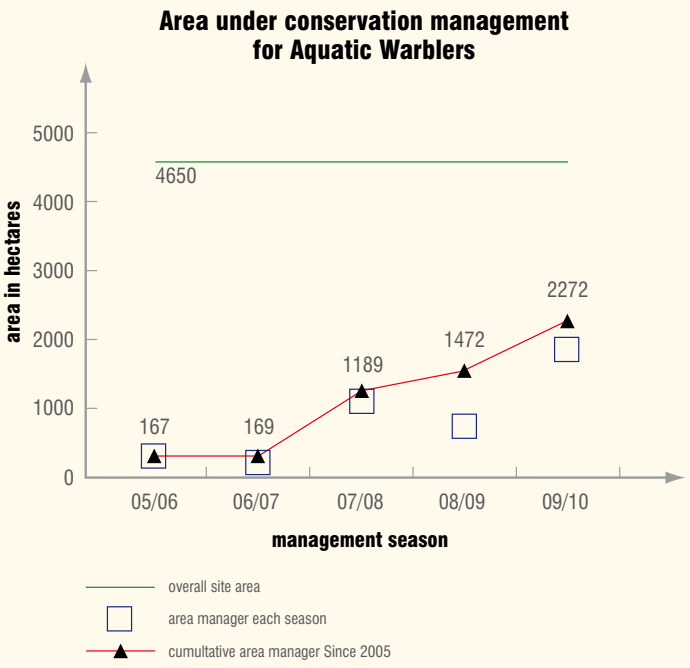
A landscape-scale solution for the management of Aquatic Warbler habitat

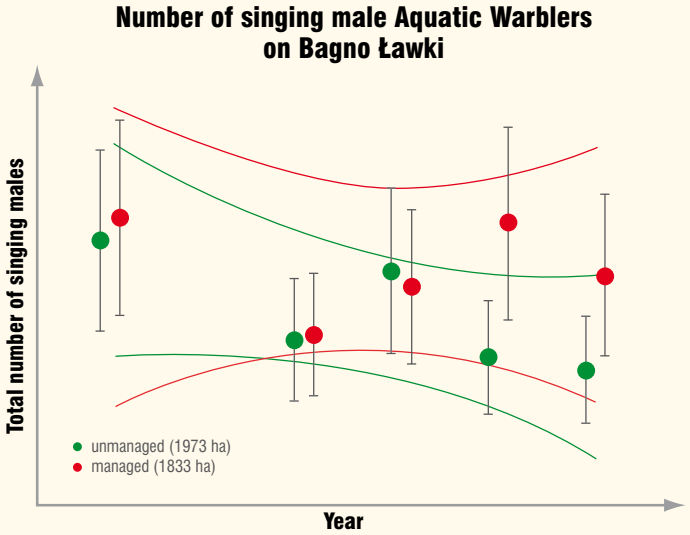
Lars Lachmann
LIFE Project Coordinator

Piotr Marczakiewicz
LIFE Site Manager for Biebrza National Park

The Biebrza Valley in Northeast-Poland presents one of the most pristine river ecosystems in Europe. Besides extensive wet forests, it holds c. 33,500 ha of open habitats in its central parts, much of it near natural fen peatlands. Here live 2,500 singing males of Aquatic Warblers (*Acrocephalus paludicola*), equalling almost 20% of the world population. After traditional land use by hand-scything for hay ceased around 1970, successional overgrowth has become the main threat to this habitat, with over 15,000 ha affected by 1999.

Our LIFE Project has now catalysed the implementation of a landscape-scale solution for the restoration and sustainable management of these fen peatlands. The plan to reintroduce mowing on several thousand hectares within the project facilitated the development and introduction of purpose-built prototype mowing machinery by a contractor of the project. The machine is an adapted alpine piste-basher on caterpillars, originally used for the preparation of ski runs, with very low ground pressure (30 g cm^{-2}) and fast working speed (up to 10 ha day^{-1}, including removal of biomass arisings). As it can be used also during high water levels and – in contrast to previously tested traditional tractors with twin-tires – does not destroy the delicate peat soil and vegetation, it is now used across the site.






The border between mown and unmown area
photo Lars Lachmann

The national park has made 12,500 ha of public land available for management under lease agreements that guarantee the benefit for biodiversity. A targeted Aquatic Warbler agri-environment package provides a financial incentive for local farmers and enterprises to take up the lease and implement the management measures.

In the near future, infrastructure will be put in place to allow for the energetic use of the biomass harvested, e.g. through the production of briquettes as alternative carbon-neutral fuel. The sale of these biomass products will contribute to the management costs in the future.

The largest contiguous area of fen meadows in the Biebrza Valley is called Bagno Ławki (4,650 ha). Thanks to the new technical possibility, the available funding and the access to the land, since 2005, the area of land managed each season at this site has increased, with substantial areas under management since 2007/08 (see figure 1), covering almost half the site (2,300 ha) in 2009/10. This area is going to increase in the coming years.

It is expected that this management approach is benefiting the Aquatic Warbler population. During the last two seasons (2009 and 2010), after the first three years of large-scale management, we recorded a notable increase in the density of singing males in managed areas and a decrease in unmanaged areas, which is an indication for a shift of distribution of the birds towards the areas that received management, but any final conclusions require additional years of monitoring and further analysis of existing data.


Bagno Ławki
photo Lars Lachmann

A new project to build on the achievements of the Aquatic Warbler LIFE Project

Lars Lachmann
LIFE Project coordinator

The Aquatic Warbler LIFE Project has facilitated the implementation of large-scale habitat management for this threatened species: It has shed light on its exact habitat and management requirements, it has facilitated the development of a technical solution for large-scale mowing on delicate peat soils, it has ensured suitable and attractive agri-environment funding for Aquatic Warbler-friendly land use and it has made land accessible for conservation management through land purchase and lease-out. Two issues, however, have been left to be solved by a new initiative: Insecurity remains over the future of funding for this mowing management, as agri-environment schemes may run out or change. On the other hand, huge amounts of biomass arising from the habitat management work present a major problem and cost factor for the farmers implementing the work.

Building on the results of a biomass feasibility study contracted within this LIFE Project, OTOP together with a partnership of companies involved in Aquatic Warbler land management has therefore developed a new project to solve both issues. This project, called "Facilitating Aquatic Warbler habitat management through sustainable systems of biomass use", has now been accepted for funding by the EU LIFE+ fund, and has started in September 2010. It is planned to run for four years, and has a total budget of 3.6 m .

The project aims to combine the recently emerging business of using biomass as alternative and climate-neutral fuel with the equally new large-scale mechanised Aquatic Warbler habitat management. It plans to demonstrate that conservation-guided management of fen mires and peaty meadows, can be economically viable if the low-quality biomass harvested at the time is not considered as an unwanted by-product, but as a valid source of biomass fuel. The project will be implemented in six project sites, covering all important Aquatic Warbler sites in Eastern Poland, including also the Biebrza Valley, which was already a location of the predecessor project. This means, that the project will affect almost a quarter of the world population of this species.


Biomass briquettes
photo Lars Lachmann


Singing Aquatic Warbler male
photo Grzegorz and Tomasz Kłosowscy

Three new biomass facilities producing pellets will be established and an existing one producing briquettes will be improved to use the biomass harvested from current and potential Aquatic Warbler breeding areas.

A concise monitoring system will inform the project about the land management implemented within and beyond the project, its effect on habitat availability and numbers of Aquatic Warblers, about the characteristics of the biomass harvested and the economical viability of the biomass use systems.

The biomass facilities will serve a priority project area of 11,850 ha. 1,400 ha will be restored through bush and tree removal or first-time mowing. Within the priority project areas, land covered by recurring management is foreseen to increases from c. 1,550 ha now to over 5,400 ha by the end of the project. Thanks to these measures, the area occupied by Aquatic Warblers is expected to increase by c. 550 ha and the number of singing Aquatic Warblers by at least 100 (equal to c. 2.5% of the current EU population) between now and the end of the project. The main aim however is to show, that the income from production and sale of biomass products can cover the costs of ongoing land management for the Aquatic Warbler.

New projects to ensure follow-up of project at Peene Valley

Franziska Tanneberger
LIFE Site Manager for Peene Valley

At the Peene Valley site, five years of LIFE project activities have helped to substantially improve biodiversity values of the area. An overall decrease of vegetation height and density and a related increase in plant species number, large numbers of breeding redshanks and lapwings as well as a massive spread of Natura 2000 species Larger Copper (*Lycaena dispar*) on the project site show this clearly. With regard to our target species Aquatic Warbler, we do not only get more odd "records" that may be attributed to the presence of information boards about the LIFE project in the peatland, but we had also a number of autumn migration records. According to the direction of the Peene Valley Nature Park, which has recently been founded, the LIFE project site became in terms of nature conservation the second most important area in the whole river valley.

In future management of the area, continuing summer and, in some parts, winter mowing is the core activity. The main strategy to sustain future funding is to agree locally the use of the biomass for energy production. Next to the major land owner (Zweckverband Peenetal-Landschaft), the main cooperation partner is Greifswald University with its new project "VIP - Vorpommern Initiative Paludikultur" (see logo). This large, interdisciplinary project has started in autumn 2010 and will spend about 4.0 mio Euro (mainly from the German Ministry of Education and Research and partly from small and medium-sized enterprises) on implementing and demonstrating various types of "paludiculture" in North-East Germany.

Paludiculture (lat. 'palus' = swamp), the cultivation of biomass on wet and rewetted peatlands, is an innovative alternative to conventional drainage-based peatland agri- and silviculture. Ideally the peatlands should be so wet that peat is conserved and peat accumulation is maintained or re-installed. Paludiculture uses that part of net primary production (NPP) that is not necessary for peat formation (which may amount to 80-90% of NPP, as peat is generally formed by roots and rhizomes). Paludicultures on rewetted drained peatlands contribute to climate change mitigation by reducing greenhouse gas emissions from drained peatland soils and by replacing fossil resources by renewable biomass alternatives. For example, using reed biomass from a rewetted peatland would avoid emissions of almost 30 t CO_2-equivalents per hectare and year. In contrast, biogas from maize cultivated on drained peatlands leads to enormous CO_2 emissions (with 880 t CO_2 per terajoule (TJ) much higher than the CO_2 emissions from combustion of fossil fuels like peat (106 per TJ) or coal (98 per TJ).

In cooperation with the VIP project of Greifswald University, a rototype wetland harvester is being built in Poland and will be used still in autumn 2010 to harvest biomass from the LIFE project site for fermentation in a near-by biogas plant. The harvester is based on a Kässbohrer Pistenbully 240 and equipped with a 3.5 m wide cutter bar, a field chopper (chopping at < 1 cm stalk length), and rubber tracks. The wagon for loading the biomass will have rubber tracks of maximum width, too. The same equipment will be also used for winter harvesting for briquette production. Depending on a decision of the Ministry of Agriculture, Environment and Consumer Protection Mecklenburg-Vorpommern, we will make the biomass harvesting for energy production economically more viable by purchasing and activating eligibility certificates for direct payments. Unfortunately, such peatland sites are currently not considered eligible in Germany, so an official (and hopefully positive) decision is urgently needed.

The landscape of Peene Valley
photo Franziska Tanneberger

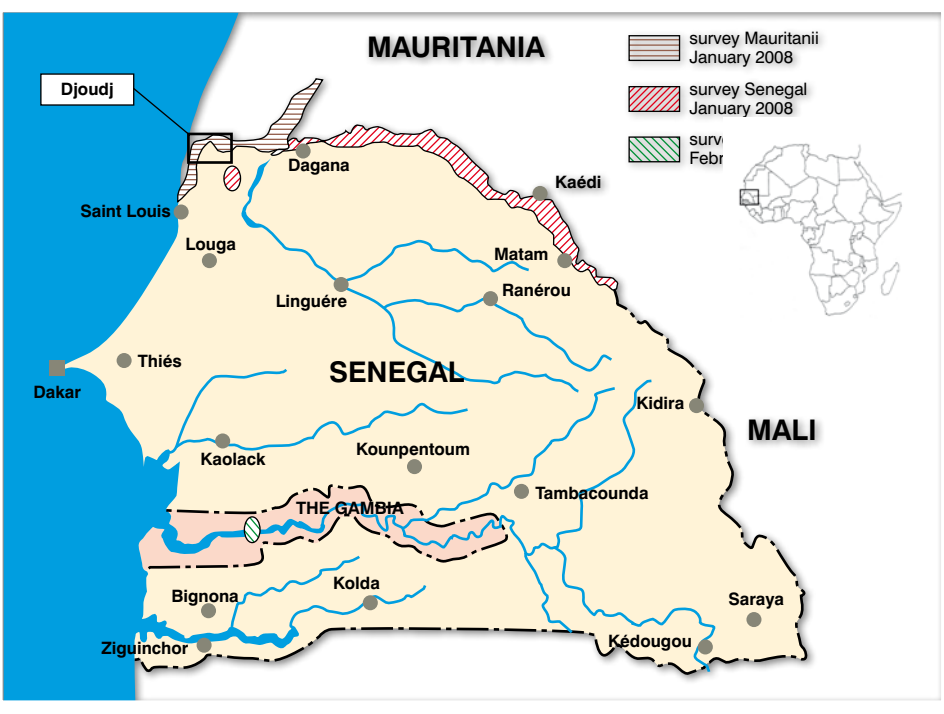
Progress on the identification of the Aquatic Warbler wintering sites

Martin Flade
Chairman of the Birdlife International Aquatic Warbler Conservation Team

Volker Salewski
University of Osnabrück


Male Aquatic Warbler equipped with a light-level geolocator, Supoy marshes, central Ukraine, July 2010
photo Volker Salewski


Typical Aquatic Warbler habitat in the Djoudj area, Senegal, January 2009
photo Volker Salewski



Map of surveyed areas in Senegal and neighbouring countries

Knowledge about how prevailing conditions throughout the entire annual cycle affect the migrants' demography is essential for the implementation of conservation strategies. Therefore, the knowledge of the wintering sites of Aquatic Warbler has a very high priority.

The first and until today only known Aquatic Warbler wintering grounds were discovered by an AWCT expedition in floodplain marshes along the Senegal River in the Djoudj area, Senegal, in January 2007. The total number of 158 Aquatic Warblers mistnetted in Djoudj during various AWCT expeditions 2007-2009 indicates that the species is common at least in parts of the area. Here, Aquatic Warblers are exclusively found in vast homogeneous, water-logged marshes dominated by *Scirpus* spp. or *Sporobolus robustus*. Detailed studies on habitat use, diet, home ranges and threat status by Cosima Tegetmeyer (doctor theses) and Susanne Arbeiter (master thesis) have started in 2008.

Several approaches (mist netting, radio-tagged birds) coarsely estimated the mean density of Aquatic Warblers in suitable habitats in Djoudj at 0.5 to 1.6 birds/ha. The total area of suitable habitat was estimated between 4,000 and 10,000 ha in different years, dependent on large seasonal and inter-annual water fluctuations. This means that 2,000–16,000 Aquatic Warblers could stay in Djoudj in winter. Since the global population in spring is estimated at 20,000-25,000 birds, Djoudj may hold between 10% and >50% of the global population.

Several efforts were undertaken to identify further wintering sites on the ground (Fig. 1):

- In the Diawling National Park at the Mauritanian side of the Senegal delta large areas rather similar to the Aquatic Warbler habitats in Djoudj were almost dry in January 2008. Mistnetting at the most suitable locations in January 2008 and 2010 failed to capture a single Aquatic Warbler. Further search along the Senegal River between Keur Massène and Rosso as well as along the Kundi River revealed only very small plots of suitable habitats.
- The southern part of the Senegal River valley between Djoudj and Bakel contained almost no suitable areas in January 2008. Mist-netting in small Cyperus marshes (10-25 ha each) failed to record a single Aquatic Warbler.
- The Ndiael Wildlife Reserve in the south-eastern Senegal estuary comprises hundreds of hectares of low grassy marshes quite similar to Djoudj, but the major part was already dry when visited in January 2008. Despite intensive mistnetting in the most suitable part no Aquatic Warbler was captured.
- Gambia River floodplain: potential sites near Farafenni were either too small, dry, converted into rice fields or overgrown by high stands of cattail in early February 2009.

The unsuccessful search for further Aquatic Warbler non-breeding sites highlights the outstanding importance of the Djoudj area. Nevertheless, rapid identification of alternative wintering areas may play a crucial role for Aquatic Warbler conservation considering the highly dynamic current changes in the Sahel region!

Unfortunately, neither ringing, nor molecular studies, nor isotope signatures have provided evidence for connectivity between Djoudj and particular Palaearctic breeding populations:

Ringing: No Aquatic Warbler ringed at the breeding sites has ever been recovered in sub-Saharan Africa nor has one of the 158

Aquatic Warblers ringed in Djoudj ever been recorded at the breeding sites. However, a bird ringed on autumn migration in Spain in 2006 was recaptured in Djoudj in January 2007, and two birds ringed in Djoudj in January 2009 have been recaptured in the Loire estuary, France, in August 2009. At the same place, breeding-birds from NW-Poland and Ukraine have been captured in July and August 2009.

Genetic studies: Attempts to assign 59 Aquatic Warblers captured in Djoudj to Eurasian breeding populations (diploma thesis Anna Vogel, 2009) revealed only vague results with a few birds assigned to Lithuania and Pomerania, but leaving the majority of birds unassigned, which is explained by the week genetic differentiation among breeding populations.

Stable isotopes: a former study by Pain et al. (2004) was expanded in order to compare isotope ratios of Aquatic Warbler feathers collected in Djoudj (61 birds) with those from 15 Palaearctic breeding sites (Steffen Oppel, RSPB). The isotope ratio of Aquatic Warbler feathers seems to be largely determined by small-scale foraging behaviour at a specific location (large within-site variation) rather than by large-scale isotopic gradients. There is no indication that different breeding populations grew feathers in isotopically distinct regions in Africa. Overall, 20% of feathers from the breeding grounds had isotope signatures that were inconsistent with the samples from Djoudj, indicating that some Aquatic Warblers may moult elsewhere.

A recent modelling approach, combining records from Djoudj, satellite images and climate data produced new maps of potential distribution (Graeme Buchanan, RSPB). As a result it is suggested to target future field surveys towards the Inner Niger Delta in Mali and some temporary lakes in southern Mauritania.

A completely new approach to identify wintering grounds has been started in July 2010 by the AWCT in cooperation with the Swiss Ornithological Institute: 30 Aquatic Warblers of the Supoy population (Ukraine) were equipped with newly developed lightweight geolocators (type SOI-GDL05.10). Geolocators measure ambient light intensity in regular intervals which allows the calculation of the time of sunrise and sunset in order to determine the geographical position of the bird. The logger birds have to be recaptured to retrieve the data (May 2011). If the pilot project is successful it will be extended to other Aquatic Warbler populations.

Trial fuel briquettes produced from biomass harvested in Sporava mire, Belarus
photo Uladzimir Malashevich

Start of vegetation management at Aquatic Wabler breeding site in Belarus

Uladzimir Malashevich
BirdLife/CMS International
Aquatic Warbler Conservation Officer

Wendelin Wichtmann
Michael Succow Foundation, Germany

Vegetation management scheme of Sporava mire, Belarus (location of briquetting facility is marked with red, areas suitable for mowing – with yellow)

As for most Aquatic Wabler breeding habitats all over Europe, the problem of overgrowing is very urgent for Sporava mire (Belarus). This protected area holds about 500-630 singing males or 5% of the global population. The need of vegetation management was prioritized as essential in a management plan for Sporava mire to conserve its unique biodiversity.

Pilot works on active vegetation management started at Sporava in 2006. Those pilot activities showed technical possibility of mowing of the mire even with normal tractors. However such mowing with regular tractor wheels appeared to be very weather dependent and harmful for delicate peat soils. Costs of mowing for silage and hey were calculated. Monitoring of key bird species proved the effectiveness of such conservation measures.

To perform weather independent mowing special machinery is required. Such caterpillar mowing devices were specially adapted to peatland conditions within EU LIFE Project "Conserving Aquatic Wabler in Poland and Germany" in 2008.

In order to find a solution for economical sustainability of mowing a feasibility study on using biomass from wet peatlands in Belarus was prepared in 2010. According to this research the most economically efficient way of use of biomass obtained from mowing of Aquatic Wabler habitats is production of fuel briquettes (Fig.1). There are plans to sell the biomass briquettes as a substitute mainly for peat briquettes (still in use in rural areas of Belarus).The income from sales of briquettes will cover the costs of vegetation management making the whole cycle self-supporting.

The threat to Aquatic Warbler at the Pripyat River

Anatoliy Poluda
Ukrainian Society for the Protection of Birds expert

The water level in the Pripyat river has fallen down almost 0,5 meter after riverbed deepening (near Richytsya, July, 2008)
photo Anatoliy Poluda

The total population of the Ukrainian Aquatic Warbler counts about 4200-4860 males (Pripyat group – 3500-4000 males and Desna-Dnipro group – 600-700). More than 60 % of Ukrainian Aquatic Wabler breed in the Pripyat river floodplain between Richytsya village and lake Lyubyaz. Around 3600 ha of suitable habitats for Aquatic Wabler are located in this area. 10 hydrological reserves (Ukrainian: *zakaznik*) and the Pripyat-Stokhid National Park were established in this area in 2007; whole area is designated as the wetland of international importance and Ramsar site.

Unfortunately in Ukraine establishing protected areas, in particular reserves of local importance, can't guarantee conservation of sites. During 2005-2007 the most parts of riverbed between village Richytsya and Turiya river mouth have been deepened. The deepening of the rivers is forbidden on territories of Nature Reserve Fund of Ukraine (hydrological reserves and National Parks). At the moment this valuable area isn't within the territory of National Park, but it is a nature reserve of local importance. The total area of habitats suitable for Aquatic Wabler in this part of river valley makes about 425 ha.

As a result of deepening works the water level in floodplain has fallen down to 0,5-1,0 m below the ground. Since the beginning of works the decrease of Aquatic Wabler number in these sites is being observed. The number of Aquatic Wabler in these sites in 2008 was very low in spite of the fact that this season was generally very wet.

During two previous breeding seasons (2009-2010) situation for Aquatic Wabler was more stable – due to high water level in June the number of birds has increased. Aquatic Wabler population in 2008 in this area was estimated for 95-120 males, in 2009 and 2010 – for160-210 and 340-380 males, correspondingly. But the deepening of riverbed continues to influence the water level in floodplain of the river – for example, in July 2010 it has decreased in some places to 40 cm below of ground level. On other breeding sites in the Pripyat valley the water level was at this time optimal.

Due to activity of Ukrainian Society for the Protection of Birds and administration of Pripyat-Stokhid National Park in 2008 – 2010 works on a deepening of the river were not carried out. We hope that these works will not continue.

The Polish Society for the Protection of Birds (OTOP-Birdlife Poland)
ul.Odrowąża 24
05-270 Marki k. Warszawy

tel.+48 22 761 82 05
fax +48 22 761 90 51
www.otop.org.pl
www.wodniczka.pl
www.seggenrohrsaenger.eu

Project Partners: RSPB, Förderverein Naturschutz im Peenetal e.V., Polskie Towarzystwo Ochrony Ptaków, Biebrzański Park Narodowy, ZTP

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